

Appl. Serial No.: 10/673,989
Amendment dated November 28, 2005
Reply to Office action of July 26, 2005

AMENDMENTS TO THE CLAIMS

Please enter the following listing of claims, which will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Cancelled)

Claim 2 (Currently amended): A valve assembly comprising:

 a housing having a flow channel and an annular surface surrounding the flow channel
so as to define an axis of the flow channel;

 a slide plate located in the housing and movable (a) transversely to an the axis of the flow channel between an open a closed position, in which the slide plate blocks flow through the flow channel, and an opened position, in which wherein the slide plate allows flow through the flow channel and does not block the cross section of the flow channel along the axis of the flow channel, and a soft closed position, wherein the slide plate is located within the cross section of the flow channel, and (b) axially along the axis of the flow channel from the soft closed position to a hard closed position, wherein the flow through the flow channel is blocked; and

 a seal ring positioned between the annular surface of the housing and the slide plate, wherein the seal ring includes a first side extending generally parallel with the axis of the flow path, a second side spaced radially outwardly from the first side and extending generally parallel with the axis of the flow path, a first surface extending between the first and the second sides and facing towards the annular surface of the housing, and a second surface axially spaced from the first surface and extending between the first and the second sides and facing towards the slide plate, wherein the

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second surface includes a continuous annular sealing portion for contacting the slide plate when the seal ring is positioned biased against the slide plate when the slide plate is located in the hard closed position, so that a fluid-tight seal can be formed between the continuous annular sealing portion and the slide plate when the slide plate is in the hard closed position, and at least one unobstructed passageway is positioned between the annular sealing portion and the second side of the seal ring for increasing fluid flow through the flow channel conductance between the seal ring and the slide plate as the slide plate moves between the soft closed position and the hard closed position prior to the annular sealing portion contacting the slide plate.

Claim 3 (Original): A valve assembly according to claim 2, wherein the passageways are of equal size and are successively spaced in an annular pattern about the seal ring.

Claim 4 (Original): A valve assembly according to claim 2, wherein the passageways of the seal ring extend between the second surface of the seal ring and the second side of the seal ring.

Claim 5 (Original): A valve assembly according to claim 4, wherein the passageways of the seal ring each comprise a depression in the second surface of the seal ring that extends to the second side of the seal ring.

Claim 6 (Original): A valve assembly according to claim 2, wherein the passageways of the seal ring each comprise a depression in the second surface of the seal ring positioned between the second side of the seal ring and the annular sealing portion of the second surface of the seal ring.

Claim 7 (Original): A valve assembly according to claim 2, wherein the passageways of the seal ring each extend between the second surface of the seal ring and the first surface of the seal ring.

Claim 8 (Previously presented): A valve assembly according to claim 2, wherein the seal ring

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has a nipple extending coaxially into the flow channel.

Claim 9 (Original): A valve assembly according to claim 8, wherein the nipple has an annular groove in an outer surface of the nipple, and an o-ring is located in the groove.

Claim 10 (Original): A valve assembly according to claim 2, wherein the annular sealing portion of the second surface of the seal ring has an annular groove, and an o-ring is located in the groove.

Claims 11-12 (Cancelled)

Claim 13 (Currently amended): A valve assembly according to claim 2 [[12]], further comprising a shaft fixedly coupled to the slide plate through a pivot arm extending generally laterally from the shaft, the shaft at least partially mounted within the housing to rotate about a longitudinal axis of the shaft to allow the slide plate to rotate from the open position into the flow channel to the soft closed opened position, and also slide substantially parallel to the axis of the flow channel to allow the slide plate to move axially longitudinally between the soft closed opened position and the hard closed position.

Claim 14 (Original): A valve assembly according to claim 13, further including a cam mechanism coupled between the shaft and the housing to provide a combination of rotational movement and sliding movement of the shaft.

Claim 15 (Original): A valve assembly according to claim 14, wherein the cam mechanism comprises:

a cam surface defined by the housing; and
a cam follower fixed to the shaft and engaging the cam surface of the housing.

Claim 16 Previously presented): A valve assembly according to claim 2, further comprising a

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plurality of fasteners displaceably arranged in a plurality of holes of the annular surface of the housing and wherein the slide plate is secured to the fasteners.

Claim 17 (Original): A valve assembly according to claim 16, wherein the slide plate is removably secured to the fasteners.

Claim 18 (Original): A valve assembly according to claim 16, wherein the housing further includes an annular chamber which coaxially surrounds the flow passage and into which the holes formed in the annular surface open, and wherein the valve assembly further comprises an annular piston located in the annular chamber and connected to the fasteners.

Claim 19 (Original): A valve assembly according to claim 18, wherein the housing further includes at least one conduit in fluid communication with the annular chamber.

Claim 20 (Original): A valve assembly according to claim 18, further comprising a plurality of springs contained within the chamber and biasing the piston towards the seal ring.

Claim 21 (Previously presented): A high purity gas delivery system including a valve assembly according to claim 2, and further including a process chamber connected to a vacuum pump through the valve assembly.

Claims 22-40 (withdrawn)

Claim 41 (Canceled)

Claim 42 (Currently amended): A valve assembly according to claim 2 [[1]], wherein the passageway is provided in the seal ring.

Claim 43 (Previously presented): A valve assembly according to claim 42, wherein the seal ring

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includes a plurality of the passageways.

Claim 44 (Currently amended): A valve assembly according to claim 2 [[1]], wherein the at least one passageway is provided in the slide plate.

Claim 45 (Original): A valve assembly according to claim 44, wherein the slide plate includes a plurality of the passageways.